In the Claims

1.(Currently Amended) A ~~unitary in-line early reflection enhancement~~ sound system processor for providing in-line early reflection enhancement in a sound system, the sound system processor comprising:

multiple inputs for receiving multiple input signals from one or more microphones positioned close to one or more sound sources within a room or other space so as to detect predominantly direct sound;

an early reflection generation stage which has a finite impulse response and which without internal feedback generates a number of delayed discrete reproductions of the input signals ~~whereby the stability of the system is substantially independent of delay times and amplitudes~~, the early reflection generation stage comprising at least one cross-coupling matrix which is an orthonormal cross-coupling matrix, ~~wherein~~ and the early reflection generation stage ~~has~~ having ~~an overall power gain that is substantially constant with frequency to provide~~ a unitary transfer function matrix such that the sound system processor has an overall power gain that is constant with frequency to improve stability in the sound system, whereby the stability of the sound system in relation to said delayed discrete reproductions of the microphone signals is independent of delay times and amplitudes in the early reflection generation stage; and

a number of loudspeakers placed to broadcast said delayed discrete reproductions of the microphone signals into the room or other space.

2.(Cancelled)

3.(Original) An in-line early reflection enhancement system according to claim 1 wherein the early reflection generation stage includes a series connection of two or more cross-coupling matrices with a set of delay lines positioned between the two matrices.

4.(Previously presented) An in-line early reflection enhancement system according to claim 3 wherein said two or more cross-coupling matrices are orthonormal matrices.

5.(Previously presented) An in-line early reflection enhancement system according to claim 1 wherein each input is coupled to every output to provide a maximisation of diffusion of the input signals to all of the outputs.

6.(Previously presented) An in-line early reflection enhancement system according to claim 1 in combination with a wideband non-in-line assisted reverberation system which increases apparent room volume, including multiple loudspeakers to broadcast sound into the room, and a reverberation matrix connecting a similar bandwidth signal from each microphone through one or more reverberators having an impulse response consisting of a number of echoes the density of which increases over time, to one or more loudspeakers.

7.(Original) An in-line early reflection enhancement system according to claim 6 wherein in said wideband non-in-line assisted reverberation system the reverberation matrix connects a similar bandwidth signal from each microphone through one or more reverberators to at least two loudspeakers each of which receives a signal comprising a sum of at least two reverberated microphone signals.

8.(Currently Amended) A method for enhancing the acoustics of a room or auditorium using a ~~unitary~~ sound system processor for providing in-line early reflection enhancement in a sound system, the sound system processor having ~~with~~ one or more microphones, an early reflection generation stage, and a number of loud speakers placed to broadcast into the room or auditorium, the method comprising detecting predominantly direct sound with the one or more microphones positioned close to one or more sound sources and providing multiple input signals, generating a number of

delayed discrete reproductions of the input signals in the early reflection generation stage having a finite impulse response and without internal feedback, whereby ~~the stability of the system is independent of delay times and amplitudes,~~ the early reflection generation stage ~~comprising~~ comprises at least one cross-coupling matrix which is an orthonormal cross-coupling matrix wherein the early reflection generation stage has a unitary transfer function matrix such that an overall power gain of the sound system processor ~~that~~ is ~~substantially~~ constant with frequency to ~~provide~~ improve stability in the sound system ~~a unitary transfer function matrix~~; and whereby the stability of the sound system in relation to the delayed discrete reproductions of the microphone signals is independent of delay times and amplitudes, and broadcasting said delayed discrete reproductions of the input signals into the room.

9.(Cancelled)

10.(Original) A method according to claim 8 wherein the early reflection generation stage includes a series connection of two or more cross-coupling matrices with a set of delay lines position between the two matrices.

11.(Previously presented) A method according to claim 10 wherein said two or more cross-coupling matrix or matrices are orthonormal matrices.

12.(Original) A method according to claim 8 wherein each input is coupled to every output to provide a maximisation of diffusion of the input signals to all of the outputs.

13.(Currently amended) An in-line early reflection enhancement system comprising:

multiple inputs for receiving multiple input signals from one or more microphones positioned close to one or more sound sources within a room or other space so as to detect predominantly direct sound;

an early reflection generation stage which has a finite impulse response and which without internal feedback generates a number of delayed discrete reproductions of the input signals and which has a unitary ~~power gain~~ transfer function matrix that provides an overall power gain that is constant with frequency whereby the stability of the system is independent of delay times and amplitudes, the early reflection generation stage comprising ~~at least one cross-coupling matrix which is an orthonormal cross-coupling matrix and~~ a series connection of two or more cross-coupling matrices which are orthonormal matrices with a set of delay lines positioned between the two matrices; and

a number of loudspeakers placed to broadcast said delayed discrete reproductions of the microphone signals into the room or other space.

14.(Cancelled)

15.(Previously presented) An in-line early reflection enhancement system according to claim 13 wherein each input is coupled to every output to provide a maximisation of diffusion of the input signals to all of the outputs.

16.(Previously presented) An in-line early reflection enhancement system according to claim 13 in combination with a wideband non-in-line assisted reverberation system which increases apparent room volume, including multiple loudspeakers to broadcast sound into the room, and a reverberation matrix connecting a similar bandwidth signal from each microphone through one or more reverberators having an impulse response consisting of a number of echoes the density of which increases over time, to one or more loudspeakers.

17.(Previously presented) An in-line early reflection enhancement system according to claim 16 wherein in said wideband non-in-line assisted reverberation system the reverberation matrix connects a similar bandwidth signal from each microphone through one or more reverberators to at least two loudspeakers each of which receives a signal comprising a sum of at least two reverberated microphone signals.

18.(Currently amended) A method for enhancing the acoustics of a room or auditorium comprising detecting predominantly direct sound with one or more microphones positioned close to one or more sound sources and providing multiple input signals, generating a number of delayed discrete reproductions of the input signals in an early reflection generation stage having a finite impulse response and without internal feedback, and which has a unitary ~~power gain~~ transfer function matrix that provides an overall power gain that is constant with frequency, whereby the stability of the system is independent of delay times and amplitudes, the early reflection generation stage comprising ~~at least one cross-coupling matrix which is an orthonormal cross-coupling matrix and~~ a series connection of two or more cross-coupling matrices which are orthonormal matrices with a set of delay lines position between the two matrices; and broadcasting said delayed discrete reproductions of the input signals into the room.

19.(Cancelled)

20.(Previously presented) A method according to claim 18 wherein each input is coupled to every output to provide a maximisation of diffusion of the input signals to all of the outputs.